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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,929	10/11/2001	Daishin Okada	P 283788 F01P48090	5454

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EXAMINER	
JASTRZAB, KRISANNE MARIE	

ART UNIT	PAPER NUMBER
1744	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,929	OKADA ET AL.	
	Examiner	Art Unit	
	Krisanne Jastrzab	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 7/5/2005 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Applicant indicates that a copy of the Japanese office action and an English language translation are included, however, those documents were not found.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5-6, and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al., U.S. patent No., 5,230,220 in view of Matuda et al., U.S. patent No. 5,078,971, and Yamamoto et al., JP 59012732(abs) and Gellert U.S. patent No. 5,136,170.

Kang et al., teach a removable refrigerator sterilizing/deodorizing apparatus providing in the cold air circulation path, having discharge means for producing ozone and uv rays, following by filtration and catalytic removal of the ozone before release of the air. The function of the deodorizer is controlled in conjunction with the operation of the refrigerator such that activation is performed based on temperature, air ciruculation and opening/closing of the door, as well as odor sensing. Kang et al., are silent as to specifying that a photocatalyst is employed in the system. See column 1, lines 11-30, column 2, lines 43-45 and lines 55-65, column 3, lines 5-21, and lines 40-68, column 4, lines 15-65 and column 5, lines 1-20.

Matuda et al., also teaches a removable deodorizing apparatus for a refrigerator and teaches the conventionality of employing a photocatalyst because of it's known and expected activity of accelerating odor decomposition while minimizing replacement requirements. See column 1, lines 30-45, column 3, lines 4-20 and lines 55-61.

Yamamoto et al., teach the known and expected use of the combination of plate and wire electrodes for ozone generation in a refrigerator by applying a high voltage therebetween. See the abstract.

Gellert teaches the known and expected generation of both ozone and UV by the application of voltages between spaced electrodes. See column2, lines 30-36 and column 4, lines 39-48.

It would have been obvious to one of ordinary skill in the art to utilize a photocatalyst in the deodorizer of Kang et al., because Matuda et al., clearly teach it's efficacy in refrigerator deodorization with enhanced ability to decompose odor for longer periods than other odor removal means. It would further have been obvious to employ discharge means including a plate electrode and wire electrodes as taught in Yamamoto et al., for their recognized efficacy in the deodorization of refrigerators, with placement of the photocatalyst between the electrodes because such placement would ensure maximum exposure of the photocatalyst to the generated UV radiation.

Claim 4 isrejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al., with Matuda et al., Yamamoto et al., and Gellert, as applied to claims 1, 5-6, and 8-16 above, and further in view of Miyakami et al., U.S. patent No. 4,904,289.

Miyakami et al., teach a refrigerator deodorizer employing ozone and catalytic ozone and odor removal means. Miyakami et al., teach placement of a catalytic removal means at both the inlet of the device as well as the outlet in order to prevent the escape of ozonated air into circulation within the refrigerator if the fan malfunctions and back flow occurs. See column 3, lines 15-30 and lines 58-68, column 4, lines 1-2, and claim 1.

It would have been well within the purview of one ordinary skill in the art to include two catalytic means as in Miyakami et al., in the combination above because it would prevent the escape of ozonated air into circulation within the refrigerator if the fan malfunctions and back flow occurs.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al., with Matuda et al., Yamamoto et al., and Gellert, as applied to claims 1, 5-6, and 8-16; and further in view of Kawashima et al., U.S. patent No. 4,955,208.

Kawashima et al., teach the conventionality of a porous ceramic support for a photocatalyst within a refrigerator deodorizing device. See column 4, lines 49-68.

It would have been well within the purview of one of ordinary skill in the art to use a conventionally recognized support for the provision of the photocatalyst in the combination above, such as the porous ceramics taught in Kawashima et al., because of their well-recognized efficacy in refrigeration deodorization.

Response to Arguments

Applicant's arguments with respect to claims 1 and 4-16 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that the art of record failed to teach or suggest the use of wire electrodes and a flat, plate electrode as in newly amended independent claim 1, however, the newly cited and applied art clearly teaches such structure.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bernstein et al., U.S. patent No. 6,235,090 B1 and Tanaka et al., U.S. patent No. 4,780,277 both support the conventionality of the use of wire and plate electrodes for ozone generation in odor reduction.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krisanne Jastrzab whose telephone number is 571-272-

1279. The examiner can normally be reached on Mon.-Wed. 6:30am-4:00pm and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Kim can be reached on 571-272-1142. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krisanne Jastrzab
Primary Examiner
Art Unit 1744

September 14, 2005